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Cornell Countryman

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November, 1957

Our 54th Year

Lend to me Your winds.

Let them stir
This laggard heart of mine,
Give life to this
My torpid gratitude
And bear it heavenward.

Permit each rustling leaf,
Each air-borne spray,
Each silken murmur
Of the winnowed grass
To be my fervent prayer
Of thanks.

Lend the lightning to me.

Allow it, if You will,
To rend this vaulted soul,
To shatter every selfish thought,
And wither with its heat
Each growing weed
Of petulance.

Command its glowing point
To touch and aggravate to flame
The smouldering kindling
Of my gratefulness.

Let me borrow of the thunder.

Let me steal its strength
And let its rolling loudness
Add volume to the smallness
Of my voice.

From it, let me draw
The courage to withstand
The tempting comforts
Of my passiveness,
And wake me to acute awareness
Of my dependency on You.

And of Your rain and snow
Let me partake.

Let them cleanse
This mind, this heart, this soul
Of the self-imprinted stains
Which are the telltale marks
Of gross conceit.

Permit them to refresh the memories
Of countless blessings,
Of mercies undeserved,
And rewards unmerited.

Put, for just one day,
Your elements within my hand
To magnify and swell
My small and soundless
"Thanks!"

Thanksgiving, 1957

JOHN DEERE
MOLINE, ILLINOIS

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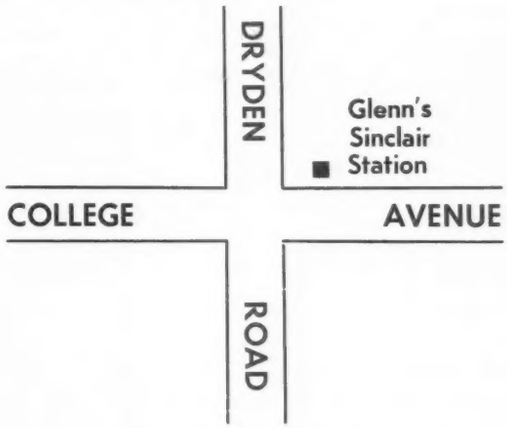

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From the Editor's Desk

The Farm Voice Fades to a Whisper

THE farmer is becoming politically sterile; the strong farm voice which supported the Populist and Greenback movements is dead. There remains only an echo of the once powerful farm voice.

Farm power has slowly ebbed away since the "New Deal" of 1933, when Franklin Roosevelt had depended heavily upon farmers for political support. Harry Truman was supported somewhat by farmers, but President Eisenhower's victory did not depend entirely on the farm belt population.

With this sort of trend, presidential hopefuls will make fewer whistle stops in tobacco chewing towns. A quick glance at the population census illustrates the death of these whistle stops.

The number of farmers in the United States is the same today as it was in 1870. The non-farm population increased from 15 to 150 million. In 1870, farmers were numbered at 22 million; the same number plow the soil today. But population isn't the only factor which softened the bellow of countrymen.

There is among farm groups a great deal of diversity. Some factors advocate rigid price supports, but others would like a flexible system. Policy diversities like this are a block to a solid voting unit.

The American press recognized this diversity in farm organization. Quoting from *Newsweek* magazine, "A significant political development is going almost unnoticed: the decline in legislative influence of the big farm organizations, The Farm Bureau, National Grange, and The Farmers' Union.

"The reason: existence of powerful conflicting groups within each organization." As a result, these organizations can't speak for all their members.

However, disunity and population aren't the only factors contributing to lessened farm voice. There are over a million farmers with a very low income (below $2,000) whose produce would not be missed if removed from the market. Due to this knowledge there is an increasing drive by the government to rid the nation of these slipshod farmers. Remaining farmers would not stir from their rockers in an effort to aid their "soil brothers," for they benefit from the reduction by subsequent increases in farm prices. The sad part of this reduction would be the loss of a few million farm votes.

If the farm vote continues diminishing, the inevitable will occur—the farmer would lose his political voice. Without a voice, the farmer can do little to prevent the government from dropping farm support—a move which would turn the farmer and his produce into the competitive market. Perhaps a free market is what farming needs.

And what of the small farmer? Without a political voice, he is like a lion tamer without a whip. He will be gnarled and stepped on. His small farm, incorporated with one or more others, will produce a higher class of farmers (net-income above $7,000 a year). Already the number of farms with annual earnings above $5,000 has increased with a production that is 80% above the entire farm output.

And, as the dust settles, the scene becomes clear. Thousands of farm families have remained in business through the graces of politics. Remove the attraction between agriculture and politics and a lot of farms will go up for sale.

But there remains a small kernel of hope for farmers who don't want to become charity cases. This grain of hope means political survival wherever agriculture will gear its policies toward the urban population. Agriculture must also be careful not to antagonize labor, for there couldn't be a better coalition than that between the farmer and organized labor.

This doesn't mean that agriculture is on the way out. In America, as in England, the farmer will be protected by the government. But agriculture must not wait in changing its policies, for there is no doubt that the farmer is becoming politically sterile—G.P.H.

Inquiring Countryman

Question:

What is your opinion regarding Senator Humphrey's (D–Minnesota) condemnation of the Department of Agricultural Economics in the New York State College of Agriculture?

Answer:

Professor K. L. Robinson—"Senator Humphrey believes that all Cornell professors think alike. It is misleading to make the assumption that all agricultural economics professors are against price supports. Senator Humphrey also implies that anyone who thinks farmers would be better off if fewer people were in agriculture is backward and misinformed. It is very possible that Senator Humphrey is misinformed as to the long run interests of agriculture."

Professor J. W. Mellor—"Senator Humphrey doesn't realize that professors are individuals with different views. Cornell doesn't condemn price supports, it merely tries to point out their implications. While they may help some farmers, others are hurt. Perhaps Senator Humphrey is too concerned with immediate problems. His remarks might even be considered an attack on academic freedom and the freedom to teach. Senator Humphrey vastly underestimates the student's ability to appraise what he is told, and overestimates the professor's ability to imprint his views."

Professor S. W. Warren—"Apparently Senator Humphrey favors an indefinite continuation of high price supports. This means production for government storage rather than for the consumer. I believe in an economic system where production is for purpose of consumption. Senator Humphreys says this is 'backward, misinformed, and erroneous'."

Professor L. Spencer—"Before Senator Humphrey's statements can be interpreted as having real value, he should spend some time studying Cornell's 'system of agricultural economics.' He probably reached his conclusions through incomplete information and chance contacts. While many of the present members of the department disagree with Senator Humphrey, there are a wide range of views. Price supports have been a necessary part of the agricultural program during the period of adjustment from war to peace, but there have been very real problems and disadvantages."

The Farm Vote

Has farming lost its stride?

The EMPIRE Story

ABOUT DAIRY REPLACEMENTS

Some folks think of the nine stockyards of Empire Livestock Marketing Cooperative as places to market slaughter livestock only.

But on regular weekly marketing days at each stockyards (now held 468 days each year) plus over 40 specially scheduled dairy replacement sales, and through on-the-farm auction sales, in the 12 months from October, 1956 through September, 1957, farmers and dealers consigned and bought 11,690 head of dairy replacement cattle through Empire.

Yes, helping to market dairy cattle which still have years of life left as milk producers, is indeed an important marketing service offered by

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Gouverneur - Greene
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West Winfield

PHOTO SCIENCE STUDIOS BY SOL GOLDBERG

Botany, one of the many fields of study open to agricultural students requires work done in the laboratory.

By Mrs. H. S. GABRIEL
(Department of Extension Teaching and Information Radio Services)

Agricultural college admission demands variety in high school preparation.

Opportunities Unlimited

(Editor's Note: This is the second of two articles planned to answer the questions of prospective students concerning the opportunities available to graduates of the New York State College of Agriculture at Cornell University and the preparation needed for admission to the College.)

AGRICULTURAL college education may be described as a balanced blending of the practical with the academic. As agriculture has changed from the self-sufficient family farm to a highly specialized operation, the emphasis of the college has kept pace. The need for more highly trained scientists in plant, animal, engineering, and social fields has made it desirable to consider a wide variety of subjects and work experience offered for admission.

THE qualifications for admission are flexible to a considerable degree as far as subject matter is concerned. Completion of a secondary school course comprising 16 units of study is required of all applicants. All students must offer four units of English and two of mathematics. A high degree of proficiency in these subjects is a necessity. The ability to read with speed and comprehension and to write clear, well constructed sentences is basic to success in all college courses, as well as in future careers. Many scientific courses require a good, basic knowledge of mathematics. Although two units of mathematics are required, three would give a better preparation.

The remaining ten required units may be selected from a wide variety of high school subjects, including such vocational courses as agriculture, home economics, and industrial arts.

Chemistry or physics should be offered in addition to the unit in general science and three units in science are advisable. With the emphasis upon science throughout modern agriculture, high school students, looking toward admission to the College of Agriculture, should not only include mathematics and science subjects in their preparation, but make a special effort to do well in them.

APPLICANTS usually offer sufficient preparation in social studies. Those who enjoy foreign language studies should be encouraged to continue, especialy if they intend to go into graduate work later on.

The standards of the university are high, and the quality of work done in high school has proved to be the best indicator of how a student will get along with the academic work of college. Although no minimum grade has been set for admission to the College of Agriculture, about half of the students accepted come from the top fifth of the graduating class in high school.

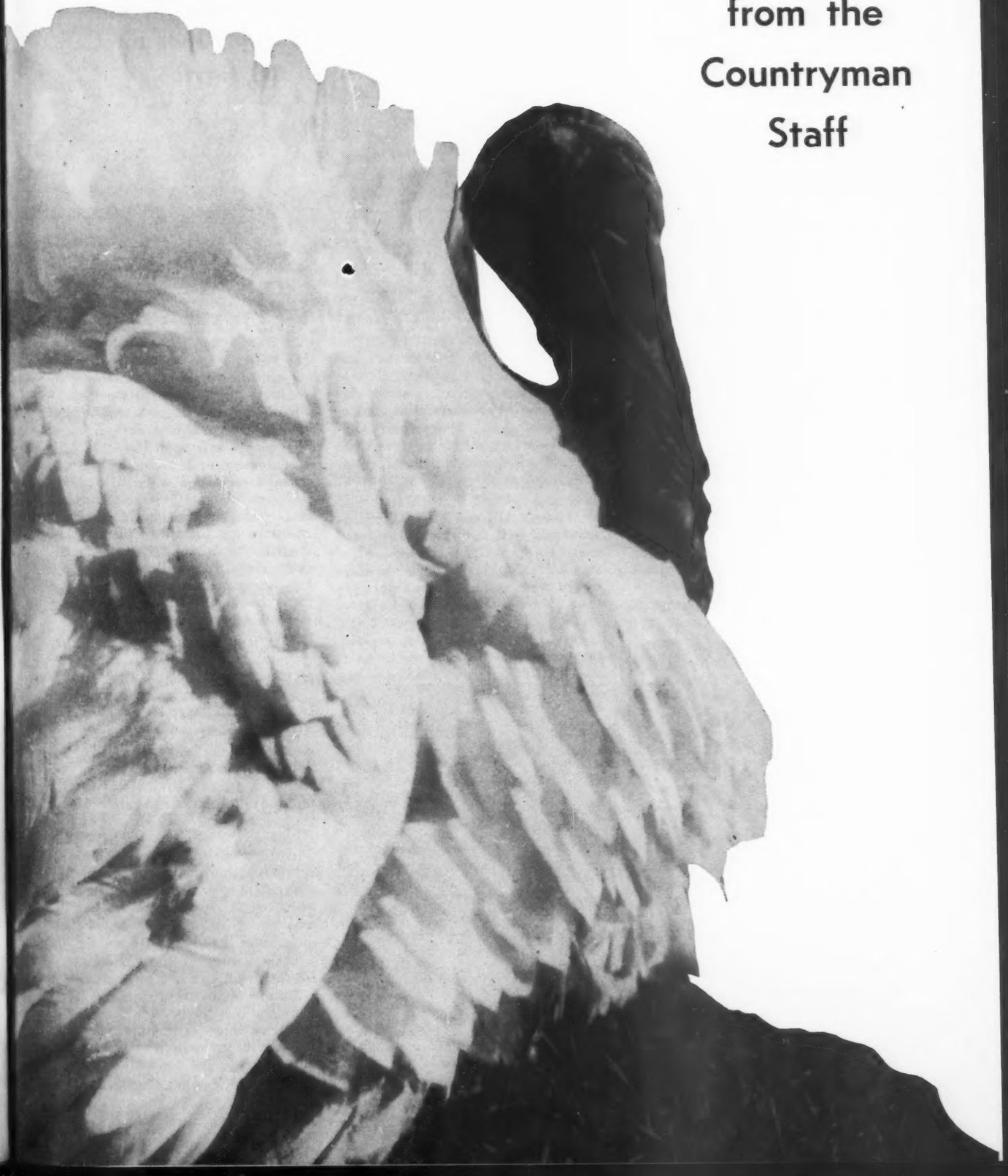
Work experience also contributes to success at the College. Some years ago the College Administration found that students with no farm background usually did not make as good academic records as those who had such experience. A higher proportion dropped out before graduation and a smaller proportion found good opportunities after graduation. As a result, applicants who are not farm reared are expected to work on a farm at least one summer before entering college. Additional work experience in fields related to agriculture is also accepted in the case of students planning on special training.

PARTICIPATION in activities outside the classroom is often an indication of all-around development and of ability to work successfully with other people. Such participation receives consideration in applications for admission but cannot be accepted as an offset to a poor scholastic record.

Admission is not restricted to students with farm background, or to residents of New York State. The College does, however, look for students interested in agriculture and who want to prepare for a scientific career that may contribute to its advancement. The whole purpose of the College is to be of service to farmers and to the people of New York State through an improved agriculture. A student who does not share this purpose would not be happy at Cornell.

Happy Thanksgiving

from the
Countryman
Staff



RAYMOND PITTMAN

Brahman cross cattle bringing firewood to town are used for work, meat, and milking purposes in the area where Raymond Pittman serves as missionary.

Modern Missionaries attend Cornell to gain agricultural backgrounds for rural service.

By WILLIAM H. WINGELL, JR. '60

Cornell's Milestone for Missionaries

OKINAWA! Brazil! The Belgian Congo! To the corners of the earth will go a small number of Agriculture students next June. The purpose of their journeys is to bring Christianity and an improved way of life to people of distant lands.

These are not regular students. In fact, many of them have already received degrees from various colleges and universities. They are studying under a special program at Cornell and have a title, one which has meant salvation and progress to countless individuals. It is the title of missionary!

The program was introduced by the College of Agriculture in 1930, as a one month short-course for missionaries. Its purpose was to provide rural emphasis in the work of missionaries who found themselves in rural areas throughout the world. Offered were courses in sociology, rural education, nutrition and health, and agriculture. The short course is still taught, with the 28th Annual Cornell School for Missionaries commencing in January.

INSTRUMENTAL in forming the one month course and a special one year course was John H. Reisner, former Dean of the College of Agriculture and Forestry at the University of Nanking, China. While there, he recognized the fact that the usual missionary training emphasized theology to such an extent that those workers in rural areas could not cope with practical situations. Returning to the United States in 1930, Mr. Reisner became executive secretary of the Agricultural Missionary Foundation, known today as Agricultural Missions, Inc. This organization has done a grand job sponsoring the program.

Mr. Reisner came to Cornell in 1941 and planned with Professor A. W. Gibson, Director of Resident Instruction, and the staff, a one year course for missionaries, enrolling them as adult special students in the College of Agriculture. At this time, Professor H. S. Tyler was made advisor of the new group, which numbered twenty. He has continued to serve in this capacity and is today guiding the students through their period at Cornell. In the earlier years, the students were given a special technical agricultural course but today are enrolled in courses taught to all students.

AT the present time there are nine individuals in the one-year course. They have baccalaureate or theological degrees or both. While here, their schedules are planned according to their previous training, the area in which they will serve, and the type of service they will perform. Courses in the College of Arts and Sciences have been added, including anthropology and foreign language, which have proved invaluable to missionaries now in the field.

In addition to the two previously mentioned plans, two other categories of study are offered here. The first is an enrollment as an undergraduate studying pre-theology in the College of Agriculture or other school at Cornell. Upon graduation, the student will enter a seminary to be trained for the ministry or go directly into the missionary field. The second category includes students who have taken their undergraduate work elsewhere and who are in the graduate school studying rural sociology, extension education, or rural education. These may be persons taking training before going into missionary work or those who are on leave temporarily.

PRESENTLY enrolled in the one-year course is John A. Marshall, a student who plans to devote his life to serving God and the people of the Belgian Congo. Mr. Marshall graduated from the California State Polytechnic College in 1954, receiving a bachelor's degree in field crops. He entered the Eastern Baptist Seminary to study theology and after three years, graduated as a minister with a Bachelor of Divinity degree. When Mr. Marshall completes his work at Cornell in June, he will sail for Brussels, Belgium, to take a colonial course sponsored by the government. This is required of all individuals who plan to reside in the Congo.

Upon arrival in the Congo, Mr. Marshall will set out to develop an agrarian improvement program designed to meet the people's needs. His main task as an agricultural missionary will be to organize an agricul-

tural school where modern methods of farming can be taught. Also included will be an extension program whereby those who cannot attend the school may receive the benefits of scientific farming. The Belgian government will cooperate in developing the plan. The college will be affiliated with a number of secondary schools which are already operating there. There are, at the present time, 90 missionaries, serving in evangelistic, agricultural, and related capacities.

When asked why he had chosen the agricultural aspect, Mr. Marshall replied, "I feel that by working in agriculture you are doing a good work and a good work is that which is an end in itself. An agricultural missionary is not a man who'll say ,'I'll help you if you go to my church,' but a man who wants as an end in itself to help people in their daily living. Such a man cannot help but have great influence in bringing these people into a right relationship with God."

THE problems Mr. Marshall will confront shall be many. For instance, a major item is the food eaten by the people. Their chief staple is the manioc root, which consists mainly of starch and furnishes a highly imbalanced diet. Mr. Marshall will show the farmers other products which can be successfully grown and give them better nutritional standards. The farmers themselves will probably present some difficulty, for at the present time it is the women who till the soil in the Belgian Congo, agriculture being considered a menial task. To convince the men that they should do the farming will be a job of no small proportions. Lastly, an irrigation system may have to be set up. The climate in the country is such that during part of the year it rains consistently and for the remainder, drought exists.

As to the duration of his stay in Africa, Mr. Marshall said, "My interest has always been in tropical areas and so I would interpret this as part of what God would have me do. Also, I feel that if I can meet the needs of the people and be of some help in daily life, I would stay there for a lifetime."

To help Mr. Marshall meet the needs of the people is the purpose of Cornell's program. There are more than 2,000 agricultural missionaries in the field and over half of them have taken one of the courses offered here. These facts show the importance the missionary places on this training.

However, the training given here aids not only the agricultural missionary. Mr. Raymond Pittman, an evangelistic missionary, is a man who knows what it means to serve the Lord in this capacity, for he has been doing just that since 1941, when he and his family went to Brazil.

A minister and graduate of Asbury College, Kentucky, and Princeton Theological Seminary, Mr. Pittman defines his work as "rural evangelism," stating that "a great share of the missionary fields are rural in character and it is only natural that missionaries should be interested in that work." He was the first resident missionary to live in the area in which he works and found himself quite often bringing aid to the people, first by horseback and later on, by jeep.

Said Mr. Pittman, "My jeep was one of the first vehicles in the area and from the beginning it was used to bring the sick to town. Frequently I was able to give first aid and medical counseling to people in isolated areas, on a simple basis."

Agriculturally speaking, the main problem in Brazil is the fact that the farmers are "mining" the land. The common practice is to cut down virgin timber, cultivate the soil for several years and then, when it becomes exhausted, move on to another area.

MR. Pittman explained, "We are trying to teach them that every man has, from God, responsibilities for the land and that it is wrong to take something from the land and not put it back. It is a high ideal and they don't really understand it can be done."

To show the people it is possible to restore the fertility of the land, two demonstration programs have been set up, one near Cuiba, Mato Grosso, and the other at Sitio do Mato, in the state of Bahia. The missionaries are also developing an extension program. The Brazilian government is actively sponsoring this development program.

Concerning the evangelistic problems confronting missionaries in Brazil, Mr. Pittman said, "I think the greatest difficulty is the superstitious nature of the religious beliefs held by the people. The realism of the Protestant teaching and faith is often difficult to get across. Getting them to think of Christ as a real man who had human problems is our main task."

Yet, of the countries in the world where missionary work is being done, Brazil is the one where the Protestant faith has been most successfully adopted. The work being done by Mr. Pittman is sponsored by the Board of Foreign Missions of the Presbyterian Church. These Boards of the various churches also recommend and sponsor the missionary's study at Cornell.

In telling why he has dedicated his life to missionary work, Mr. Pittman said, "Believing that Jesus Christ is God's answer for every human problem, I committed my life to Him for Christian service and when the opportunity opened to go to Brazil, I felt it was God's will for me to do so."

IN the above statement lies the reason for every missionary's undertaking, whether evangelistic or agricultural. Realistically, the two cannot be separated. Even now, the classical theological training of the past is giving way to practical rural emphasis. The College of Agriculture has done its part in promoting this agrarian background for missionaries and will continue to do so in the future.

Raymond Pittman and colleagues are about to be ferried across a river while on an evangelistic mission in the early part of his service. Horses are still being used by missionaries to reach the remote areas of Brazil. RAYMOND PITTMAN

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Points for Farm Practice

IN last month's issue there appeared a lengthy letter to the editor concerning farm practice. The *Cornell Countryman,* in keeping with its policy of being impartial, would like to present the other side of the problem, as given to us by S. R. Shapley, Professor of farm practice at Cornell. Professor Shapley, who is responsible for administration of the requirements as laid down by faculty legislation, indicated that many of the opinions in last month's letter gave the wrong impressions.

To begin with, an introductory orientation course in Agriculture was strongly urged in the letter. But looking at the statistics, in 1956-1958 only 3.7% of entering students had no farm practice, and this percentage has been decreasing each year. Farming is something that cannot be taught as easily with classroom exercises as with practical experience, especially in the case of foreign students.

The suggestion that the College of Agriculture has difficulty in attracting good students was countered by the fact that other schools also have trouble in attracting good timbre, and that industry drains off a lot of the potential students. The farm practice requirement has been requisite in the New York State College of Agriculture for 50 years, and our school has still maintained its position among the leaders.

Let us look at farm practice and why we have it. Although the requirement may discourage a few prospective students, the college is supposed to be a college of agriculture, not of arts and sciences. Professor Shapley emphasized that "the public expects a graduate of the College of Agriculture to know something of farming regardless of his specialization." And there are few fields of study in the College of Agriculture that cannot be fundamentally related to farming. Many industries insist that students working for them have had on the job training in farming, thus a degree from here has more meaning because of the practice requirement. This contradicts the statement in the letter: "Work experience is useful only when it is directly related to your major." It seems obvious that one cannot start building a house with the second floor, regardless of how desirable this floor may seem.

The letter finally concluded that the College of Agriculture should, "Consider some of the complaints of the students." Professor Shapley replied that "From time to time the faculty does review the practice requirement. At the present time all men students are required to have a minimum of 13 points of practice credits, all of which are to be earned from experience on a farm. How the additional 27 required practice credits are to be earned depends on the field of specialization."

But how many students are dissatisfied? Assuming that students have the courage of their convictions, answers to signed questionnaires returned by everyone have shown that approximately 90% liked the farms they worked on, their bosses, the livng conditions, and the experience gained. The pay, although low, is no worse than going farm labor rates. Farms are selected, and there are certain farm students with certain abilities. Professor Shapley firmly stated that farm practice is generally accepted by students, employers, and faculty; but in spite of this, "The practice requirement is frequenaly reviewed."

(*Continued on bottom of next page*)

Around the Upper Quad

Ag-Dom sponsored Ag-Hec Day on October 26. A chicken barbecue preceded a customary dance in Barton Hall. At the dance, the Ag-Hec Day Queen, Betty Wansick '58, the 4-H Club nominee, was crowned. The runner up, Shirley Downs '59, was nominated by the Home Economics Club.

Ag-Dom has already started planning for Farm and Home Week. This year's student chairman, John Porter '58, is assisted by Karl Smiley '59. David Kovitz '60 was elected sophomore representative to Ag-Dom to fill the unexpired term of John Sterling.

This fall, in an effort to acquaint students with clubs in the Schools of Agriculture and Home Economics, Ag-Dom financed the publication "Your Guide to Upper Campus Activities."

The **Floriculture Club** has initiated the "Big Brother System." Each new member has been given the name of an upperclassmen whom he can call on any time for advice about courses, activities, and graduation requirements.

The club has also dedicated a plot of land as a memorial to floriculture students who died in World Wars I and II. The memorial is located off Forest Home Road near the floriculture department's test gardens.

At the first meeting of the **Home Economics Club,** new members were introduced to the club's purposes and aims. This year the club plans to emphasize a different area of home economics at each meeting.

Dr. R. M. Smock of the Cornell Department of Pomology was the speaker at the first meeting of the **Pomology Club.** He discussed agriculture in India and illustrated with slides. Dr. Smock has recently returned from India, where he studied the problem of storing mangoes.

This year **Pre-Veterinary Society's** meetings will be held in Warren Student Lounge. The society's current officers include: Fred Drewes '58, president; Don Reed '58, vice-president; Marcia Sheehand '60, secretary; and Paul Kelley '60, treasurer.

At the first meeting Fred Drewes introduced Dean Hagen of the New York State College of Veterinary Medicine. Dean Hagen discussed the progress of veterinary medicine at Cornell.

Farm Practice (*from page 8*)

This coming year the farm experience form that is filled out at the time of entrance will be reviewed. At the November meeting of the faculty the following resolution was adopted: "That a committee consisting of one member from each undergraduate department in the College of Agriculture" will be formed. This committee will have "The responsibility of making a thorough review and study of the policies of the College relative to the recruitment, admissions, curriculum, requirements for graduation, farm practice, and such other factors affecting the training of future leaders in Agriculture and science."

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Extensi

"FILIPINOS are among the friendliest people in the world," commented Professor William B. Ward, head of the Department of Extension Teaching and Information at Cornell, in a recent interview. Professor Ward has a basis for his opinion—a year's work in cooperation with Philippine people. June 1956 to July 1957 he was one of Cornell's visiting professors to the College of Agriculture at the University of the Philippines at Los Banos.

HIS part in the development of an Extension Service Training Program and an Information Service at the Philippine College was a result of the much broader program of technical assistance started by the U.S. in the Philippines in 1951. Through this program the two governments hoped to rebuild the war-devastated College of Agriculture and its Central Experiment Station at Los Banos in the shortest possible time.

It was in 1952 that the New York State College of Agriculture at Cornell entered this picture of mutual aid to the Philippines. At that time, the College was designated by the U.S. government as the source of technical assistance for the Cornell-Los Banos contract. A rotation system, sending a dozen Cornell professors at a time to the College at Los Banos for 12 to 24 months, was then introduced.

In June 1956, Professor Ward, along with his family, was one of the dozen Cornell professors transplanted from Ithaca to the Philippines. His job at the College of Agriculture was to work with the head of the Office of Extension and Publications in expanding services to mass communication channels and extending other activities from the College of Agriculture.

"The basic philosophy underlying the Cornell-Los Banos partnership is that a visiting professor is at the Col-

Extension Service Rises On Los Banos Horizon

By NORMA RUEBMAN '60

lege to help develop cooperatively with Filipino staff members the resident instruction, research and extension work," explains Professor Ward. His Filipino counterpart was Professor T. G. Flores, head of the Office of Extension and Publications at the U.P. College of Agriculture. Professor Flores received his master's degree at Cornell five years ago.

"In general, the Filipino communications system is good," remarked Professor Ward when questioned by the reporter. In the field of journalism, he designated the *Manila Times* as the daily paper having the most extensive circulation, but the Philippines has 17 other daily newspapers as well as 63 weeklies, 25 general magazines, more than 600 other types of periodicals, and 27 radio stations.

"A definite language problem exists," Professor Ward explained, since most of the older people in rural areas speak many dialects. English, however, would come the closest to being a universal language. The official National language, Tagalog, is spoken in central Luzon and not in other sections of the Philippines.

Most of the magazines read by barrio people (villagers) are of the vernacular type. This, of course, presents a tremendous problem to the Office of Extension and Publications. The Office distributes agricultural information material to all interested newspapers and magazines, however, and, if they are published in a dialect, the editors do the translating. Newspaper and magazine writers have been encouraged to visit the college and prepare their own materials, thus increasing their interest in agriculture and in the college.

Professor Ward cited radio as a channel of communication that is growing in importance as electricity spreads into more areas. Although radio coverage extends throughout the Philippines, not all barrio people have electric service and many cannot afford to buy battery radios. Those who do own radios, however, share them. He said he rode through barrios many times to the tune of blasting radios.

"I sometimes wondered how the owner could stand it," he commented, "but this was just one example of Filipino generosity." In some cases, this was the only way the rest of the villagers could get rapid reports of news events and other information.

The College Radio Farm News Service, started on December 1, 1956, sends 8 to 10 timely news reports biweekly to 22 Philippine radio stations requesting the service. Out of a total of 27 standard broadcasting stations this allows excellent coverage extending into even the smaller barrios.

When questioned about TV in the Philippines, Professor Ward stated that Manila has a television station and some of the people, mainly in the city, have TV sets. But it is not yet a communications channel that reaches rural people.

DURING Professor Ward's stay at the college an important publications agreement was signed between the College and the Department of Agriculture and Natural Resources (comparable to the U.S. Department of Agriculture). This agreement called for the College to prepare needed bulletin manuscripts and for the DANR to pay for the printing and handle the major part of the distribution through the Bureau of Agricultural Extension. Two bulletins were published under the agreement and others are now being prepared.

Included in Professor Ward's work at the U.P. College of Agriculture was the teaching of Extension courses in cooperation with his counterpart, Professor Flores. During the year a new course, "Organization and Administration of Agricultural Extension Work," was added to the department. Professor Flores and a committee also developed an extension major for undergraduates.

Professor Ward recounted some of the year's developments, including:

1—The College-DANR publications agreement.

2—The bi-monthly radio farm news manuscript service.

3—Consolidation of all in formation services in the Office of Extension and Publications.

4—Expansion of the audio-visual aids section.

5—Increased use of agricultural research information from the College by newspapers, magazines, and other mass media.

6—Production of a 20-minute color movie entitled, "New Horizons in Philippine Agriculture."

—And so the work continues.

Although the Cornell-Las Banos contract continues until 1960, technical assistance for this office terminated as of June 30, 1957. Further developments in the Office, therefore, will be in the hands of the Philippine staff.

"Any Land Grant College in the States would be proud and fortunate to have such a staff in its Extension and Information Department," Professor Ward said. "They are well prepared to go it alone."

HE praised the Filipino students for their eagerness for knowledge, the people as a whole for their friendliness and trust. "When you work side by side in the same office day after day with people of another nation, you really get to know each other," he said. Although accomplishments in the College during the year can be listed easily, Professor Ward concluded there were certain personal gains that could not be so easily evaluated. Perhaps the most significant accomplishments at Los Banos have been in human relations and understanding.

A Can to Build a Meal On

By SHARLENE WEINTRAUB '58

Canned meats have become the basis for many modern menus.

CANNED meat is being seen more and more on grocery shelves today. Yet, just thirty years ago, canned meat was almost unheard of and was rarely purchased by the housewife.

Quality of canned meat has been greatly improved within the past thirty years. For example, instead of using the cheapest ingredients available, today more expensive cuts such as ham are canned.

The main purpose of canning meats, preservation, is responsible for the sale of millions of pounds. The armed forces, especially during World War II, were large consumers of canned meats. For those who camp, the can is a necessity.

The convenience of processed meat is another good feature. The housewife need merely open a can of beef stew and heat to have a tasty main dish. Contrast this with the time required to make your own beef stew. It may take several hours to drive into town, find, and purchase meat and vegetables that your palate demands.

The difference in price between canned and fresh meat is due to the low cost of distribution. In shipping meat, one freight car can accommodate 54,000 pounds of canned meat while it can hold only 21,000 to 27,000 pounds of fresh meat. Fresh meat also requires refrigeration.

THE canning of meat and meat products requires much capital. For cutting up the quarters and other heavy butchering, table and blocks are needed. Aluminum or stainless steel cookers are used for processing.

Cleanliness is extremely important in working with meat products. Many factories stop their operation in the middle of the day to give their machines a hot water spray or steam bath. Such cleaning removes thin layers of grease and dried meat juices which act as protective coverings for various harmful micro-organisms.

Since ham is one of the most popular items in this market, it shall be used to illustrate the canning process.

Meat factories either cure hams themselves or receive them already cured. When hams are received already cured, they are subjected to a preliminary cleaning to remove surface dirt and contamination. The hams are scrubbed with a handbrush and then immersed in water which contains eight to ten parts per million of chlorine, for an hour.

Hams are not sterilized in the canning process because they cannot be treated with the same degree of heat as most other meats. Therefore cleanliness is of the utmost importance in all operations of canning ham.

After the hams have been drained for a short period, they are graded and sorted according to weight.

AFTER boning the ham, it may be treated in one of two ways. It may be cooked without removing the rind or it may be pre-cooked in an open vessel and the rind removed just before canning. The former method is the most common. Here the cooking process takes place entirely in the can. The ham is first placed in a mold shaped like the can to be used and is subjected to high pressure. This pressure must be sufficient to make the uncooked meat retain the shape of the mold after the pressure has been removed. The ham is then transferred to the can and cooked.

The operation of fitting the ham into the can is important. The canner wants as near a fit as possible. The side of the ham must be in contact with the can sides. If the can is too large, it may collapse when vacuumized or cooled after processing.

After the ham is canned, it passes through a seaming machine. The can is then subjected to a vacuum exhaust. A can is processed in a retort or water tank. This is to make the product sterile and to kill any bacteria that may exist. The temperature during this process is approximately 180 degrees Fahrenheit and the can is heated for five to five and a half hours.

After the heat processing is completed, the canned ham is cooled under cold water sprays.

THE finished product is now ready for shipping. Meat products which are shipped among states are controlled by the Meat Inspection Branch of the United States Department of Agriculture. A canning company cannot ship interstate without first obtaining this permit from the proper federal authorities. Before obtaining this permit, the applicant must describe the company, its operations, equipment, character of products, formula used, and methods followed. He must then promise to subscribe to all the rules and regulations set down by this service and make any changes the inspection service deems necessary.

The federal inspectors are concerned with three things: the animals must be healthy; all subsequent handling must be under sanitary conditions; and finally, the end product must be truthfully labeled. These are reasonable requirements and every respectable canner should be able to adhere to them.

The canned meat industry has succeeded in greatly simplifying the menu, and the time problem of the American housewife. Main courses can be prepared in a matter of minutes and the cost per serving is low. Processed meat has given women more free time and increased the meaning of economics in the home.

The Red Race for Supremacy

By JILL H. BECKOFF '61

Communist China is rapidly gaining supremacy in agricultural production and trade.

COMMUNIST China is rapidly taking the lead in Asian agriculture. In the eight years of its existence, this government has brought China close to regaining her pre-World War II supremacy in production and trade.

IN addition to added domestic production, China is making an increasing effort to enlarge her agricultural export volume. She is concentrating on intracontinental trade, giving impetus to the theory of "Asia for the Asians". An outstanding example of this is her bid to regain her share of the Japanese soybean market. (Prior to World War II, China and Manchuria supplied most of Japan's soybean needs, but, since 1945, her main supplier has been the United States.)

At a recent Japanese trade fair, Communist China's exhibit was devoted primarily to a display of soybeans and their products. Japan's announcement of resumed trade relations with China may be an indication that she is accepting this bid.

Perhaps the main change in Chinese agriculture has been the rise of the cooperatives to replace the small, peasant-owned farms. Farmers have been organized into three types of cooperatives: credit, supply-market and farming. The supply-market co-ops were established first and are now the only place where the farmer can supply his needs and market his produce. These were followed by credit cooperatives which, along with the agricultural banks, are the farmer's sole source of loans. When these two agencies were followed by farming cooperatives, the Chinese farmer found himself with little choice but to join.

This reorganization was gradual. Uncultivated land was taken from its owners and given to laborers without land and to farmers with poor or marginal lands. These farmers were then organized into mutual aid teams and encouraged to further organize into cooperative farming societies. Some small land holdings were pooled to form these societies and the farmers were compensated for this land as well as for their labor. The Chinese government hopes that all farming will soon operate under this plan.

This cooperative movement is considered vital to the survival of Communism. On a more practical level, it makes crop planning and the feeding of China's expanding urban population more efficient. With communization, each farm can be made to conform to a set overall plan—an impossible goal to achieve when dealing with millions of individual farms.

HOWEVER, more than an increase in efficiency is responsible for China's great strides in the field of agriculture. There has been an increase in the application of science and technology. One of the most important of these increases is the use of irrigation. Rather than being a new novation, irrigation has been in use in China for thousands of years, but, recently, the practice has been extended. The number of acres under irrigation has increased 29%, from 50 million acres in 1949 to 64.5 million in 1955, by Chinese government estimates. Most of this increase is attributable to minor canals and dams and similar small-scale projects.

The use of farm machinery, on the other hand, has been restricted. Tractors are now used on some state farms and improvements have been made in plows and other implements, but the principal source of power is still the Chinese peasant. Because of the number of people engaged in farming, large scale mechanization would be extremely costly. In addition, Chinese industry is not developed fully enough to absorb the people put out of work by automation.

Increased application of natural science has also aided the growth of this nation's agriculture. Greater stress has been put of the use of commercial fertilizers and animal and vegetable manures. China, however, produces only a small part of her commercial fertilizer needs and has been forced to import many supplies necessary for the production she does carry on.

They are also getting greater use out of available land resources. The Chinese claim that they have substantially increased arable acreage through land reclamation projects, but foreign agricultural experts tend to disagree, saying that the reclaimed land is mainly marginal land which will be among the first to be affected by price drops. Emphasis on high yielding crops like potatoes and corn has increased income per acre of land. Limited use of insecticides and fungicides has reduced annual crop loss due to fungus and insect diseases to 10% of total production. If not for the scarcity of spraying and dusting equipment, these practices would probably be further extended.

MORE important than any of these methods is the nation's most abundant resources: the Chinese peasant, an excellent cultivator who, in spite of China's overpopulation, has managed to make his tiny plot of land produce enough to keep him and the non-farm population alive. In an attempt to make the farmer even more productive, the whole nation has been at work building up China's agriculture and industry, an unemployed man being considered a waste of national assets. A great deal of teaching and training is going on and the education force is being increased.

In addition to all these factors, much of the increase may be due to normal post-war recovery. However, close attention should be paid to Communist China, for she is effecting our export markets in Asia. We may not recognize Communist China as a political power, but her economic importance cannot be denied.

The Soup Bone: From the Bowl to the Body

Animal bones are being used to rebuild the human skeleton.

GRETCHEN WISE

Dog with grafted bone.

By ARTHUR SMITH '59

A new use has been found for the common soupbone, which may be a boon to the fields of orthopedic and dental surgery. Research conducted at the Naval Research Institute at Bethesda, Maryland has shown that there may be an inexpensive way of processing animal bone of any kind so that it may be used by grafting and for rebuilding parts of the human skeleton.

Samples of this new type of bone, termed "anorganic bone", have been sent for testing to scientists in the United States and in several foreign nations. Armour and Company, a Chicago meat packing firm, is planning large scale production of the processed bone for human usage.

The preparation of anorganic bone was developed by Captain Fred Losee of the United States Navy while studying the development of cavities in human tooth enamel. The adaptation to orthopedic surgery was suggested by Dr. Lloyd A. Hurley, now a Resident at the New York Orthopedic Hospital, Columbia Presbyterian Medical Center, New York City.

ANORGANIC bone is prepared by boiling bone samples in a norganic solvent called ethlyenediamine. All of the organic matter, or that matter subject to decay (protein, starch, sugar, fat, etc. within the bone, is consequently removed, leaving the crystalline, lattic work structure or skeleton of the bone untouched. The organic substances removed are believed to cause the undesirable reaction that occasionally prevents bone grafts from "taking" or integrating into the structures into which they are placed.

These organic substances which include the blood vessels, lymph capillaries, nerves, and many other tissues, may also carry viruses which, if retained in the grated bone, may cause infection in the receiver of the graft. The resulting bone is very white, extremely porous, resistant to decay and can be carved easily with a scalpel, thus allowing it to be shaped to fill the space it is to occupy.

ONCE prepared, anorganic bone needs no refrigeration, sterile handling or other special preservation procedures which complicate the storage of whole human bone kept in "Bone Banks." In the event of a national emergency, anorganic bone from animals can be used instead of human bone in surgery, when none of the other is available. Because of the easier handling methods and greater availability of the new material, not only large medical centers, but small outlying hospitals will be able to keep large stocks of prepared bone on hand for any sudden necessity.

(*continued on page 17*)

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Here Francis Bethlan and Carl Boothroyd innoculate corn against corn stalk rot.

Research improves agriculture products by combating plant pestilence.

By LARRY LITTLEFIELD '58

Pathologist, Save My Plant

PLANTS, like people, are plagued by many diseases for which cures and preventions are continually being sought. The job of administering to the medical needs of plants has been assigned to Cornell plant pathologists.

This department began in the early 1880's as the Plant Pathology Division of the Botany Department and was headed by Professor George Atkinson. In 1907 the Plant Pathology Department came into being under the supervision of Dr. H. H. Whetzel. The golden anniversary of the department was observed last September with a reunion of many former staff members and students. Dr. G. C. Kent is now serving his seventh year as head of the department's 25 staff members and 40 graduate students.

The department is composed of three major independent divisions: teaching, research, and extension.

THE teaching division is characterized by individual study, and accomplishment at a rate the student sets for himself. There are no textbooks for the pathology courses; the department writes its own material to serve as a guide to the student. The deparment is mainly interested in graduate students specializing in plant pathology or mycology. There are, however, several undergraduates in the department. They are taught the basic plant sciences which later lead to graduate work in pathology.

Research is perhaps the largest in scope of operation. All the staff members and most of the graduate students are conducting their own research. This research is carried on at different levels: one in disease-causing organisms and the other in the relationship between the plants and the organisms. This specialization of research leads to more cooperation as well as benefiting the farmer.

The project of Dr. W. A. Dimock on disease prevention in chrysanthemums is an example of the work done by the Plant Pathology Department. Fifteen years ago the chrysanthemum business was on the verge of collapse due to many diseases, but because of the work of Dr. Dimock, the business is now stable and profitable. His research developed a method of breeding resistance to many diseases into the plants. Now nearly all major growers follow the pattern laid down by this Cornell pathologist.

Another important project being carried on is that of Dr. W. F. Mai on the control of the golden nematode of potatoes. Cornell is the only university in the country doing work on this, the greatest potential parasite in the potato industry. Cooperation between the United States Department of Agriculture and the State of New York has greatly reduced the spread of the nematode.

THE third division of the department is extension. Its job is to report the latest research findings to the growers as soon as possible. This is done either by working with the grower directly or through the county agent. The research findings must be adapted to meet the local conditions of soil, temperature, growing season, and moisture.

Nearly all the plants we use have been studied by plant pathologists to improve the marketable product.

As a result of their research we have higher quality foods and clothing. Since new plant diseases are being found, we will always be partially dependent upon the plant pathologists to find ways to prevent or treat these diseases and to improve our agricultural products.

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Bones (*continued from page 14*)

WHEN the shaped piece of anorganic bone has been put in place, a process called revascularization occurs in which the body sends minute blood vessels through the thousands of tiny tunnels and crevasses of the newly grafted bone, and floods it with a rich supply of new blood. When regular human bone from the Bone Bank is used as the graft, the body must first clean out all of the organic tissue before it can establish revascularization.

After a fine network of blood vessels has been formed around and within the piece of anorganic bone, tubular tunnels are "eaten out" in the bone by osteoclasts, tiny bone destroying cells. Into these tunnels pass little bone forming cells called osteoblasts which lay down layers of bone and fill up the tunnels around the blood vessels. Gradually, the anorganic grafted material is absorbed by the body and replaced by living bone, which is minerally bonded to surrounding bone. This is known as "remodeling."

In the field of dental surgery, anorganic bone is used in the repair of punctured and shattered jawbones. It is used to fill spaces in jawbones after extensive extraction of teeth, to make a firm base for dentures. The dentists graft the anorganic material to impacted teeth, cell tumors, and root canals, filling in openings and stimulating the healing process. The scientists are even considering the idea of applying the anorganic bone in dust form in cases where deep cavities require extensive drilling, and where the pulp becomes exposed due to loss of the dentin. They hope that the application of this dust will stimulate the growth of a new solid dentin coating on the tooth.

THE first successful human orthopedic experiment occurred in 1956, when a crushed heel bone was reconstructed with anorganic bone. Experiments are now being conducted at the Neurological Institute, Columbia Presbyterian Medical Center, New York City by Doctors Rosomoff and Hurley, concerning the value of anorganic bone "plugs" in rebuilding damaged areas of the human skull. The value of anorganic bone in orthopedic surgery is also being evaluated at the Orthopedic Hospital of the Columbia Presbyterian Medical Center.

There is one disadvantage to the use of anorganic bone. This occurs in cases where strong bone is needed. In the ethylenediamine process, some of the strength giving collagen fibers of the bone are removed, and the bone lose a good deal of its tensile strength.

An interesting sidelight to the tale of the anorganic bone may be seen in the case of some pieces of bone obtained from an Egyptian burial ground approximately seven thousand years old. This bone was grafted into the hind leg of a dog, and it consequently became revascularized, remodelled, and incorporated, in a manner similar to anorganic transplants. Nature, during this time, accomplished the same end result (removal of the organic material) as that accomplished by an ethylenediamine extraction. Consequently, the dog became the only animal in history to possess a seven thousand year old hind leg.

THE use of animal bones as a replacement for those of humans has thus marked another stage in the forward progression of medical science. Let us hope that in the future, other materials derived from animal sources may be adapted by science, so as to prevent the disfigurement and to prolong the lifespan, of human beings.

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Oworen Reviews Research News

Martin Oworen

FARM RESEARCH

Dehydraded alfalfa boosts rate of grain.

By MARTIN U. OWOREN '60

RESULTS of research conducted at the University of Nebraska, Purdue University, Texas A & M, and Ohio Experiment Stations all indicate that unidentified factors or combination of identified and unidentified factors in dehydrated alfalfa stimulate rumen functions contributing to cattle and sheep welfare.

In Purdue University experiments, soybean oilmeal and "supplement A" which contained 14 percent dehydrated alfalfa were used separately as supplements to full feeds of grown ear corn. Steer calves fed rations containing supplement A gained weight 33 percent more rapidly than those fed soybean supplement. Dr. T. W. Perry, Purdue University professor of animal husbandry, says that it is reasonable to believe that at least a part of the superior performance of the calves fed supplement A was due to the dehydrated alfalfa meal present.

In Texas, the addition of dehydrated alfalfa meal to beef cattle rations has resulted in a 15.4 per cent increase in grains and a 15.2 per cent decrease in feed requirements per unit of gain. In Ohio, supplementing calf fattening rations of ground corn, hay, and soybean oilmeal with dehydrated alfalfa meal increased gains from 1.81 pounds to 1.90 and 1.93 pounds per day. It also increased the digestibility of the feed consumed.

Brucellosis Controlled

PROFESSOR G. G. Bradt of the State College of Agriculture at Cornell predicts that by 1960 Brucellosis will have disappeared almost entirely from the New York state sceen. He reports a 14 percent decrease in the number of cows carrying the disease in the past twenty years. This decrease has been brought about by the anti-Brucellosis program, which among other things, involves testing of milk and periodic testing of cattle blood.

Brucellosis has been known to cause a 20 percent decrease in milk production, temporary or permanent infertility of cattle, and stillborn calves.

Beta-Caretene Addition

THE United States Department of Agriculture has recently announced that beta-carotene (pro-vitamin A) has been produced by a fermentation process. The process is being further developed under the direction of Dr. R. D. Anderson of the Northern Regional Research Laboratory in Peoria. It utilizes the technique of microbiological mating discovered by West Virginia's mycologists. The mated moulds are grown in nutrient solutions of ground cereal grains which are treated with acid and fermented in aerated fermentors for several days. The carotene which is produced and stored in the cells of the moulds can be concentrated by filtration.

One implication of the discovery is that the farmer may soon increase the carotent content of his livestock rations at an appreciably low cost. This increase should result in an intensification of the desirable yellow-orange color that we find in poultry tissues, eggs, dairy products, and beef fat.

Phosphorus Content in Livestock rations

Professor S. E. Smith and Mr. M. B. Wise have recently contributed to our stock of knowledge of the phosphorous requirements of livestock.

They experimented with Holstein male calves chosen and assigned shortly after birth to experimental groups of five calves each. The calves were fed natural feedstuffs containing 0.09 per cent phosphorus on a dry weight basis. During the six-week test period, the phosphorus content of the rations was raised to 0.12, 0.18, and 0.30 per cents respectively, by the addition of dicalcium phosphate.

Such symptoms of phosphorus deficiency as poor appetite, slow rates of gain, and poorly calcified bones were observed in calves receiving the lowest levels of phosphorus. The other calves increased their rates of grain with increased phosphorus intake. The experiments indicated that the phosphorus requirements of calves was greater than the 0.09-0.18 percent.

In a similar experiment with increased phosphorus content of the rations, Smith and Wise found that the minimum phosphorus requirement of the calves, aged 12-18 weeks and weighing 200-275 pounds, was 0.22 per cent. With due appreciation of physiological and environmental differences between calves and the possible detrimental effect of excess phosphorus, the Cornell scientists recommend to the farmers a phosphorus level of 0.30 per cent or 1.5 ounces of the usual feeding grade of dicalcium phosphate per calf per day.

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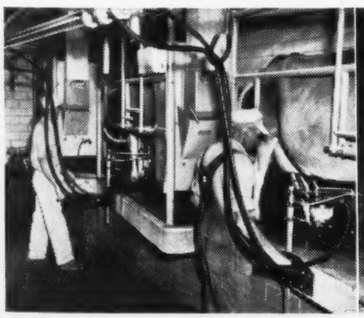

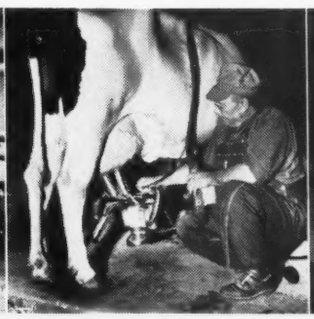

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Letters to the Editor

Exchange Student Reviews Experience

(Editor's Note: Mr. Koennecke was sent to Sweden at the end of last term. His visit is part of the Swedish Exchange Program which allows students of agriculture the opportunity to live in a foreign land. Fritz is a junior at the University of Uppsala in Sweden.)

SUMMER has come and gone and the cold Swedish winter is fast approaching. I took time, a few days ago, to look back on the past three months I have spent here and to organize my impressions. The most obvious characteristic of the Swedish people is their similarity to Americans. The people look, dress and almost think like us. This is due, in great part, to the background of the Swedes, one of democratic government and independent thinking.

In spite of their similarity to us, the Swedes have not lost their individuality. During the past few months I got to see festivals and celebrations which could have taken place nowhere else.

The Swedes love their holidays. Barely a summer weekend passed without an occasion for celebration. Everything from athletic games and meets to the opening of the crayfish season has some traditional significance. The biggest and most interesting festival is known as *"Midsommar."* I was lucky enough to attend this ancient fest at its best in the rural province of Dalarna (Dalecarlia) in central Sweden. Here Ken Wing, last year's exchange student, and I, along with some 30,000 tourists of all descriptions, watched the locals perform the ceremonies as their ancestors have done since early Christian days.

The ceremonies consist of bringing fir and poplar branches, bent into circular, square or triangular wreaths, up the rivers on "Church Boats", and placing these wreaths on a tall Maypole. The pole is then laboriously, but enthusiastically, raised to a vertical position. All this is accompanied by a half-dozen violins playing fast Swedish waltzes and polkas. With the bedecked pole upright, the local worthies say their pieces, amidst cheering and gaiety; the national anthem is followed by four cheers for the king.

Then the fun begins. The fiddles strike out with a fast polka. Everyone starts circling the pole, hands joined, alternate rows moving in opposite directions, singing. With nearly 10,000 people participating, this becomes quite a spectacle. The dancing, which later becomes more modern and conventional, continues all night with time for occasional church services.

This affair is one which stays in one's memory as a unique experience —unique, not so much for its gaiety and celebration, but for the meaning it held, and still holds, for many Swedes. There is none of the gaudy pomposity which so often accompanies traditional activities. These are the plain and simple actions of a plain and simple-living folk. The festival started in the early days of Swedish Catholicism as a time of thanks and appreciation for a good summer, and to this day has always been held near the time of the summer solstice, when the sky is never dark. It has become so popular an event that the Lutherans, the national church since the 16th century, adopted it.

Today most Swedes enjoy "Midsommar" as a summer holiday, but to the Dalecarlians it still holds much of its old meaning, and despite exploitation as a tourist "must" by some organizations, it is still most interesting with all the bright folk costumes and very provincial atmosphere.

I hope to be able to return someday and see this festival celebrated again.

With best wishes for the coming school year.

Sincerely yours,
Fritz Koennecke
Swedish Exchange Student

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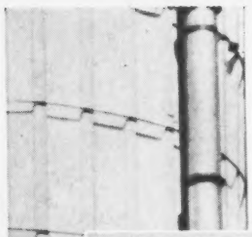

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